

REMARKS

Claims 38-99 are pending.

Claims 1, 7, 10-22 and 30-37 are concurrently canceled herewith without prejudice or disclaimer to the subject matter thereof. Therefore, all outstanding objections and rejections are rendered moot by such cancellation. Reconsideration and withdrawal of all outstanding objections and rejections are respectfully requested.

As the outstanding Office action has raised a concern regarding whether the claimed invention is fully supported by the asserted priority documents based on applications JP9-187681 and JP10-29160, the following explanation is offered.

In JP 9-187681, in the paragraphs (0017) and (0018), the structure of the turbo-molecular pump including the grooves 42, 44 and the stator vane spacer 38a, 38b is described. Further, in the paragraph(0020), it is described that if an abnormal condition should develop in the rotation of the rotor R or if the rotor R should break for whatever reason, and either or both of the stator vane spacers 38a, 38b are subjected to a large force acting in circumferential or radial direction, stator vane spacers 38a, 38b are pushed outwards, and the upper and lower split spacers 40 are separated into half pieces and the half pieces enter into the grooves 42, 44.

Thus, the following feature of newly submitted claim 38 is fully supported by the above described paragraph (0020):

“wherein a clearance is formed between said stator assembly and said casing portion, so that, when an abnormal torque is applied from said rotor to said stator assembly, at least a part of said stator assembly is allowed to move radially into said clearance”.

In application JP10-29160, the same description is made in paragraphs (0020), (0021) and (0023). Therefore, it is believed that the priorities effectively and rightfully eliminates the Japanese Patent 11-62,879 and U.S. Patent Application Publication U.S. 2001/0016160 as potential prior art references.

In addition to the above description in JP 9-187681, in the paragraph (0020), the following description is also made:

“In this condition, other stator vane spacers 38 become loose and rotatable because of the release of constrict in an axial direction against the stator S. This causes the stator vanes 32 and the stator vane spacers 38 to be dragged with the rotor R, and causes the rotation energy of the rotor R to be gradually dissipated, and the rotor R eventually stops.”

Thus, the following feature of newly submitted claim 59 is fully supported in the paragraph (0020):

“wherein a clearance is formed between said stator assembly and said casing portion, so that, when an abnormal torque is applied from said rotor to said stator assembly, at least a part of said stator assembly is allowed to rotate”

Therefore, it is believed that Japanese Patent 11-62,879 and U.S. Patent Application Publication U.S. 2001/0016160 are effectively and rightfully removed as potential prior art references.

With regard to the Japanese Patent Publication No. 61-25994, it is disclosed therein a turbo-molecular pump in which each of spacers (24) for supporting a stator vane 16 has a projecting portion at the upper portion thereof and a recess at the lower portion thereof, the recess of the spacer is fitted over the projecting portion of the adjacent spacer 24 so that the stator vane 16 is sandwiched by the two spacers (24), and the stator vanes and the spacers are alternatively superposed in an axial direction.

Further, the spacers 24 have respective male screws at outer surfaces thereof and a liquid nitrogen vessel 27 has a female screw at an inner surface thereof, and hence the spacers 24 and the liquid nitrogen vessel 27 are assembled so as to form an integral body.

With this arrangement, the stator vanes 16 and the spacers 24 are regarded as a single structural body, and the lowermost spacer 24 is fitted together with the lowermost stator vane 16 over a projection portion of the stator (unnumbered), and the uppermost spacer 24 is fitted in a recess of a casing (unnumbered) having an intake port 17, and hence the single structural body comprising the stator vanes 16 and the spacers 24 are fixed in an axial direction and a radial direction. Since the stator vanes 16 and the spacers 24 are fixed in a solid state, when the rotor is broken, even if the fragments of the rotor collide with the stator vanes 16 and the spacers 24, the stator vanes 16 and the spacers 24 do not move in a radial direction. Further, the stator vanes 16 and the spacers 24 do not rotate (move in a circumferential direction).

Therefore, what is disclosed in this prior art is notably different from the claimed invention.

With regard to Okamura (U.S. Patent No. 5,924,841), it is disclosed therein a heating portion that is provided on the outside of casing 1. In contradistinction thereto, in newly submitted claim 80 of the claimed invention, a temperature adjusting mechanism is provided inside the casing.

Therefore, what is disclosed in this prior art is notably different from the claimed invention.

In newly submitted claim 81, it is specified that a sealing portion is provided between a portion rotated by an abnormal torque applied from the rotor to the stator and a non-rotating portion.

However, Nishiuchi (US Patent 5,536,148), JP 62-29796 and JP 63-223394 do not disclose such structure. Therefore, the claimed invention is patentably distinguished therefrom.

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In newly submitted claim 83, it is specified that a sealing portion which is substantially identical to the sealing portion of claim 81. These features are not disclosed in Okamura and Deters (U.S. Patent No. 4,797,062). Therefore, the claimed invention is patentably distinguished therefrom.

Conclusion

In view of the aforementioned amendments and accompanying remarks, all pending claims are believed to be in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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